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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Larry W. Fullerton

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EXAMINER

TSE, YOUNG TOI

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/784,747	<b>Applicant(s)</b> FULLERTON ET AL.	
	<b>Examiner</b> Young T. Tse	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-25, 27-34 and 36-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-25, 27-34 and 36-42 is/are rejected.
- 7) ☒ Claim(s) 23-25, 27-34 and 36-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. In view of the appeal brief filed on April 26, 2010, PROSECUTION IS HEREBY REOPENED. A Non-final rejection (or new ground of rejection) set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611

### ***Response to Arguments***

2. Applicant's arguments, see pages 2-4, filed April 26, 2010, with respect to 35 U.S.C. §103(a) have been fully considered and are persuasive. The rejection of claims 23-24, 27-33, 36-40 and 42 has been withdrawn.

### ***Claim Objections***

3. Claims 23-25, 27-34 and 36-42 are objected to because of the following informalities:

Line 3 of each of the independent claims 23, 31 and 40, the word “create” is suggest change to “create an output ultra wideband signal having” to clarify the present invention recited in the claims as described in the specification (see paragraph [0120] of the specification).

Claims 24-25 and 27-30 depend either directly or indirectly from the objected independent claim 23, therefore they are also objected.

Claims 32-34 and 36-39 depend either directly or indirectly from the objected independent claim 31, therefore they are also objected.

Claims 41 and 42 both depend from the objected independent claim 40, therefore they are also objected.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 23-25, 27-34 and 36-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent apparatus claim 23 recites a filter that spectrally modifies an ultra wideband signal to create one or more zero crossings in the time domain. Independent method claims 31 and 40 recites similar claimed subject matter of claim 23.

The specification appears merely provide the result of a band pass filter that cause each monocycle pulse to have more zero crossings in the time domain without explaining the performance and/or operation of a time domain band pass filter in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention (see paragraph [0120]).

The invention was not even provide a band pass filter in any of the original drawings of a transmitter to support the present invention as now recited in the claims.

Claims 24-25 and 27-30 depend either directly or indirectly from the rejected independent claim 23, therefore they are also objected.

Claims 32-34 and 36-39 depend either directly or indirectly from the rejected independent claim 31, therefore they are also objected.

Claims 41 and 42 both depend from the rejected independent claim 40, therefore they are also objected.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 23-25, 27-34 and 36-42 are rejected under 35 U.S.C. 103(a) as being obvious over Fullerton (U.S. Patent No. 4,641,317) in view of Howell (U.S. Patent No. 4,578,653).

Regarding independent claims 23, 31 and 40, Fullerton discloses a spread spectrum wide band transmitter in Figure 1 comprising an output stage that generates an ultra wideband signal, for example, by the antenna 90 (col. 4, lines 33-38); a time domain filter 82 that spectrally modifies the ultra wideband signal in time domain; and the antenna 90 coupled to the time domain filter 82 that radiates the spectrally modified ultra wideband signal.

Although Fullerton shows that the wide spread signal in the time domain in waveform H of Figure 4 is being the composite of the shaping effects of the time domain filter 82, but fails to teach or suggest that the time domain filter 82 spectrally modifies

the wide spread to create one or more zero crossings in the time domain even the waveform H indicates zero crossings in the time domain.

Howell shows that a time domain filter can be implemented by a time domain high and low pass filter 13 (Fig. 2) having ideal high pass and low pass characteristics by means of a one-shot monostable multivibrator and a flip-flop interconnected by means of an AND gate and an EXCLUSIVE-OR gate wherein the set time of the one-shot is equal to the half-period of the cut-off frequency, and a time domain band pass filter 31 or 52 (Fig. 4 or Fig. 9) having ideal band pass filter characteristics comprises a pair of one-shot monostable multivibrators connected in cascade with each other and interconnected with a flip-flop by means of an AND gate (see abstract). Also see page 3, line 46 to page 4, line 45 of the explanation of the time domain band pass filter 31 shown in Figure 4 and the waveforms shown in Figure 5.

Regarding the dependent claims 25, 34 and 41 as applied to the independent claims 23, 31 and 40, wherein the time domain filter or time domain filtering is or is by a time domain band pass filter. Further, as mentioned earlier in paragraph 5 above, the disclosure of the drawings does not show any structure of a time domain band pass filter, the specification also fails to describe the difference between the time domain band pass filter of the present invention and the prior art time domain band pass filter.

Since independent claim 23 is an apparatus claim which must be structurally distinguishable from the prior art while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from

the prior art in terms of structure rather than function. In re Schreiber, 128F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Also see MPEP 2114 [R-1].

Therefore, when the time domain filter 82 shown in Fullerton's transmitter is implemented as a time domain band pass filter as taught by Howell in order to have a low pass cut-off frequency and a high pass cut-off frequency, even without the teaching of the function of creating one or more zero crossing, the features including the time domain filter 82 integrated in Fullerton's transmitter is capable of performing the claimed subject matter as recited in claim 23 without function.

Regarding independent method claims 31 and 40, again, as mentioned earlier in paragraph 5 above, the disclosure of the drawings does not show any structure of a time domain band pass filter, the specification also fails to describe the difference between the time domain band pass filter of the present invention and the prior art time domain band pass filter, the features including the time domain filter 82 integrated in Fullerton's transmitter is also capable of performing the claimed subject matter as recited in claims 31 and 40 without function.

Regarding claims 24 and 32, wherein the wide spread signal or the ultra wideband signal comprises at least one of a pulse generated from the pulse position modulator 22 or a monocycle generated by the mono 46.

Regarding claims 27, 36 and 42, wherein the wide spread signal or the ultra wideband signal is based upon a trigger signal generated by the triggering amplifier 52.



Regarding claims 28-29 and 37-38, the trigger signal generated by the triggering amplifier 52 is applied to at least one switch, which comprises at least one transistor (66 or 68).

Regarding claims 30 and 39, wherein the trigger signal is based on at least an information signal (audio signal) from microphone 34.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cook et al. relates to time domain feature detection methods, the input signal is usually preprocessed to accentuate some time domain feature, and then the time between occurrences of that feature is calculated as the period of the signal. A typical time domain feature detector is implemented by low pass filtering the signal, then detecting peaks and zero crossings of the filtered signal.

Hernandez et al. relates to a low pass FIR filter for filtering raw zero crossing times to show the filter coefficients in the time domain and the frequency response of the filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Young T. Tse whose telephone number is 571- 272-3051. The examiner can normally be reached on Monday-Friday 10:00-6:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571- 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young T. Tse/  
Primary Examiner, Art Unit 2611